

VP-3 CHECK PUMP MOTOR BRUSHES, CAT-300

If the feed pump runs poorly or won't start, check the brushes on the pump motor. They could be dirty, broken, or worn out. Removing the motor rear cover will expose the brushes and rear bearing. Remove the two long screws that hold the cover on. The cover will slide off, leaving the bearing on the armature shaft. Check the brushes to see if they spring in and out of their holders freely. If they stick this is probably the problem. Remove the spring clips that hold the brushes in their holders by pushing them in until the little hooks at the bottom disengage. Inspect the brushes for chips etc. A new brush is about almost 1 inch (2cm) long. If the old brushes are less than 1/2 inch (12mm) long they should be replaced. Clean the end cap, brushes, brush holders, and commutator with compressed air or an electrical cleaner which will evaporate completely. Try not to get the carbon dust down inside the motor as much as possible. Check the commutator for "high mica." There should be a 1/16" (1mm) deep groove between each commutator section. If the copper commutator sections have worn down to the point that the mica insulation is flush with or higher than the copper, the brushes will not be able to touch the copper, and sparking, intermittent operation, and rapid brush wear will occur. In this case the motor should be taken to a repair shop for a rebuild. In an emergency the mica can be cut down with a hook scraper made from an old hacksaw blade or other thin metal.

To reinstall the end cap: Place the brushes into their holders so that they are far enough back to clear the commutator. Slide the end cap on to the armature bearing and secure it with the two long screws. These screws will be difficult to align. Install the brush springs, making sure the little hooks engage at the bottom of the brush holder. Replace the brush access caps.

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